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EXAMINER	
SHECHTMAN, SEAN P	

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,532	HITT, DALE K.	
	Examiner	Art Unit	
	Sean P. Shechtman	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 June 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/24/03;6/21/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. See page 4 and pages 8-10 of the instant specification.

Drawings

2. The drawings are objected to because referring to Fig. 2, the repeater node 177 is shown as an actuator node 177 (See page 14, paragraph 44 of the instant specification).

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig. 1, all elements; Fig. 2, element 192; Fig. 3, element 351; Fig. 4, element 416; Fig. 12, element 1200-1205, 1207-1211, 1213, 1221, and 1222.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: Fig. 7, element 751 (See page 30, paragraph 79 of the instant specification).

5. The drawings are objected to under 37 CFR 1.83(a) because they fail to show system 120 as described in the specification (See page 18, paragraph 54 of the instant specification), and a common node connected to all the valves (See page 36, paragraph 92 of the instant specification). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The disclosure is objected to because of the following informalities:

Referring to page 1, paragraph 1, the examiner respectfully submits that the cross referenced application numbers should be filled in.

Referring to page 30, paragraph 79, the examiner respectfully submits that the soil is shown as element 754, not element 755.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 6-12, 14, 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,567,563 to Hirsch (hereinafter referred to as Hirsch), supplied by applicant.

Referring to claim 1, Hirsch teaches a wireless sensor system for providing irrigation control (whole document), the system comprising:

a plurality of sensor nodes (Fig. 2, element 17; Col. 3, line 45), each sensor node including a wireless transceiver (Fig. 4, elements 38 and 43 form a transceiver), a processor (Fig. 4, element 40, Col. 4, lines 54-66) and a sensor device (Fig. 3, element 27), the sensor node providing sensor data (Col. 4, lines 54-Col. 5, line 2); and

a plurality of actuator nodes (Fig. 1, element 12; Fig. 2, element 16), each actuator node including a wireless transceiver (Fig. 7, elements 74 and 75 form a transceiver), a processor (Fig. 7, element 16) and an actuating circuit for driving at least one irrigation valve (Fig. 7, element 16; Col. 10, lines 30-37; Col. 8, lines 13-31), the actuator node generating control commands (Col. 10, lines 15-19; Col. 8, lines 13-31);

wherein a first sensor node of the plurality of sensor nodes communicates a first message to a first actuator node of the plurality of actuator nodes through wireless communication, the first message comprising sensor data or control commands, and the first actuator node controls the at least one irrigation valve based on the first message (Col. 9, lines 47 – Col. 10, lines 37).

19. A wireless sensor system for providing irrigation control, the system comprising:

a plurality of wireless nodes (Fig. 2, elements 17, 18; Fig. 1, elements 12), each wireless node including a wireless transceiver (Figs. 4-7, any of elements of receiver and transmitter form a transceiver), a processor (controllers or computer) and a device component (for example, elements 27, 16, 72, 20), the plurality of wireless nodes comprises a first group and a second group of wireless nodes;

the first group of the plurality of wireless nodes comprising a plurality of sensor nodes (Fig. 2, elements 17), each sensor node including a sensor device as the device component (element 27), the sensor node providing sensor data (Col. 4, lines 54-Col. 5, line 2); and

the second group of the plurality of wireless nodes comprising a plurality of actuator nodes (Fig. 2, elements 18 and/or Fig. 1, elements 12), each actuator node including an actuating circuit as the device component for driving at least one irrigation valve (Fig. 6, elements 61 or 62, Col. 5, lines 20-51; Fig. 7, element 16; Col. 10, lines 30-37; Col. 8, lines 13-31), the actuator node generating control commands (Fig. 6, elements 61 or 62, Col. 5, lines 20-51; Col. 10, lines 15-19; Col. 8, lines 13-31);

wherein a first wireless node of the plurality of wireless nodes communicates a first message to a second wireless node of the plurality of wireless nodes through wireless communication, the first message comprising sensor data or control commands (Col. 9, lines 47 – Col. 10, lines 37).

20. The system of claim 19, wherein the second wireless node comprises an actuator node, the actuator node controlling the at least one irrigation valve based on the first message (Col. 9, lines 47 – Col. 10, lines 37).

21. The system of claim 19, wherein the first wireless node communicates the first message to second wireless node through one or more wireless nodes of the plurality of wireless nodes (Col. 9, lines 47 – Col. 10, lines 37).

6. The system of claim 1, wherein the first sensor node generates sensor data and transmits the sensor data to the first actuator node through wireless communication (Col. 4, lines 54-Col. 5, line 2).

7. The system of claim 6, wherein the first sensor node transmits sensor data to the first actuator node in response to a request from the first actuator node (Col. 4, lines 54-Col. 5, line 2).

8. The system of claim 1, wherein the first actuator node controls the on-duration of the irrigation valve based on the sensor data (Col. 9, lines 47 – Col. 10, lines 37; Col. 8, lines 13-31).

9. The system of claim 1, wherein the first actuator node receives sensor data from the first sensor node and a second sensor node of the plurality of sensor nodes, the first actuator node controlling the irrigation valve based on sensor data received

from the first and second sensor nodes (Fig. 2, elements 17; Col. 9, lines 47 – Col. 10, lines 37; Col. 5, line 52 – Col. 8, lines 31).

10. The system of claim 1, wherein the sensor device of each of the plurality of sensor nodes comprises one of a soil moisture sensor, a temperature sensor, a relative humidity sensor, a light level sensor, or a dissolved oxygen sensor (Col. 4, lines 54-66).

11. The system of claim 1, wherein each of the plurality of sensor nodes and each of the plurality of actuator nodes further comprises a power unit (Col. 4, lines 41-53).

12. The system of claim 11, wherein the power unit comprises one of a solar power device or a battery power device (Col. 9, lines 47 – Col. 10, lines 37).

14. The system of claim 1, further comprising:

a wireless monitor node including a wireless transceiver, the wireless monitor node monitoring sensor data from the plurality of sensor nodes (Fig. 1, element 12; Fig. 2, element 16; Col. 5, line 52 – Col. 8, lines 31).

9. Claims 1, 5-7, 9-12, 14, 19-23 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No. 6,685,104 to Float et al (hereinafter referred to as Float), whole document.

Referring to claim 1, Float teaches a wireless sensor system for providing irrigation control, the system comprising:

a plurality of sensor nodes (See Figs. elements 11), each sensor node including a wireless transceiver (Fig. 2, elements 26 and 27 form a transceiver), a processor (Fig.

2, element 24) and a sensor device (Fig. 2, elements 23, 11a), the sensor node providing sensor data (Col. 3, lines 5-Col. 4, line 30); and

a plurality of actuator nodes (See Figs. elements 12 and 15s), each actuator node including a wireless transceiver (See Figs. 3, 4, any of the transmitter and receiver combinations of elements 12 or 15s form a transceiver), a processor (See Figs. 3, 4, microprocessor or controllers) and an actuating circuit for driving at least one irrigation valve (See Figs. 3, 4, any of elements 33, 34, 37, 44, 45), the actuator node generating control commands (Col. 5, lines 1-57);

wherein a first sensor node of the plurality of sensor nodes communicates a first message to a first actuator node of the plurality of actuator nodes through wireless communication, the first message comprising sensor data or control commands, and the first actuator node controls the at least one irrigation valve based on the first message (Abstract; Col. 7, lines 31-47; Col. 4, lines 20 – Col. 5, line 52; Col. 6, lines 40-59).

19. A wireless sensor system for providing irrigation control, the system comprising:

a plurality of wireless nodes (whole document), each wireless node including a wireless transceiver (See Figs. any of the transmitter and receiver combinations form a transceiver), a processor (See Figs. any of the microprocessors or controllers) and a device component (See Figs. virtually any element can be a device component), the plurality of wireless nodes comprises a first group and a second group of wireless nodes (See Figs. for example, sensors and controllers);

the first group of the plurality of wireless nodes comprising a plurality of sensor nodes (See Figs. elements 11), each sensor node including a sensor device as the device component (Fig. 2, elements 23, 11a), the sensor node providing sensor data (Col. 3, lines 5-Col. 4, line 30); and

the second group of the plurality of wireless nodes comprising a plurality of actuator nodes (See Figs. elements 12 and 15s), each actuator node including an actuating circuit as the device component for driving at least one irrigation valve (See Figs. 3, 4, any of elements 33, 34, 37, 44, 45), the actuator node generating control commands (Col. 5, lines 1--57);

wherein a first wireless node of the plurality of wireless nodes communicates a first message to a second wireless node of the plurality of wireless nodes through wireless communication, the first message comprising sensor data or control commands (Abstract; Col. 7, lines 31-47; Col. 4, lines 20 – Col. 5, line 52; Col. 6, lines 40-59).

5. The system of claim 1, wherein the first sensor node generates a control command based on the sensor data and transmits the control command to the first actuator node through wireless communication (Col. 6, lines 40-59).

6. The system of claim 1, wherein the first sensor node generates sensor data and transmits the sensor data to the first actuator node through wireless communication (Col. 6, lines 40-59).

7. The system of claim 6, wherein the first sensor node transmits sensor data to the first actuator node in response to a request from the first actuator node (Col. 5, line 53 - Col. 6, line 59).

9. The system of claim 1, wherein the first actuator node receives sensor data from the first sensor node and a second sensor node of the plurality of sensor nodes, the first actuator node controlling the irrigation valve based on sensor data received from the first and second sensor nodes (Col. 5, line 53 - Col. 6, line 59).

10. The system of claim 1, wherein the sensor device of each of the plurality of sensor nodes comprises one of a soil moisture sensor, a temperature sensor, a relative humidity sensor, a light level sensor, or a dissolved oxygen sensor (Col. 3, line 56).

11. The system of claim 1, wherein each of the plurality of sensor nodes and each of the plurality of actuator nodes further comprises a power unit (See Figs. battery or solar array).

12. The system of claim 11, wherein the power unit comprises one of a solar power device or a battery power device (See Figs. battery or solar array).

14. The system of claim 1, further comprising:

a wireless monitor node including a wireless transceiver, the wireless monitor node monitoring sensor data from the plurality of sensor nodes (Fig. 4, Col. 5, lines 20 - Col. 6, line 59).

20. The system of claim 19, wherein the second wireless node comprises an actuator node, the actuator node controlling the at least one irrigation valve based on

the first message (Abstract; Col. 7, lines 31-47; Col. 4, lines 20 – Col. 5, line 52; Col. 6, lines 40-59).

21. The system of claim 19, wherein the first wireless node communicates the first message to second wireless node through one or more wireless nodes of the plurality of wireless nodes (Abstract; Col. 7, lines 31-47; Col. 4, lines 20 – Col. 5, line 52; Col. 6, lines 40-59).

22. The system of claim 19, wherein the first wireless node comprises a sensor node generating a control command based on the sensor data, the first wireless node transmitting the control command to the second wireless node (Col. 6, lines 40-59).

23. The system of claim 22, wherein the second wireless node comprises an actuator node, the second wireless node receiving the control command from the first wireless node for controlling the at least one irrigation valve (Col. 6, lines 40-59).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 2-4, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirsch as applied to the claims above, and further in view of U.S. Pat. No. 6,437,692 to Petite et al (hereinafter referred to as Petite).

Referring to claims 2-4, Hirsch teaches the plurality of sensor nodes and the plurality of actuator nodes are distributed to support a first irrigation zone and a second

irrigation zone; wherein the first sensor node supports the first irrigation zone and at least one wireless node of the one or more wireless nodes supports the second irrigation zone (Fig. 2, Col. 3, lines 12-44).

Referring to claims 2-4, Hirsch teaches all of the limitations set forth above, however fails to teach wherein the first sensor node communicates the first message to the first actuator node through one or more wireless nodes in the system, the wireless nodes being one or more of the plurality of sensor nodes or one or more of the plurality of actuator nodes. Referring to claim 15-17, Hirsch teaches all of the limitations set forth above, however fails to teach a wireless gateway node including a wireless transceiver, the wireless gateway node monitoring data from the plurality of sensor nodes and the plurality of actuator nodes and communicating the data to a network gateway; a wireless repeater node including a wireless transceiver, the wireless repeater node receiving a message from one of the plurality of sensor nodes and the plurality of actuator nodes and transmitting the message to a destination sensor or actuator node; wherein the first sensor node communicates the first message to the first actuator node through the wireless repeater node.

However, referring to claims 2-4, Petite teaches wherein first sensor node communicates first message to first actuator node through one or more wireless nodes in an irrigation system, the wireless nodes being one or more of plurality of sensor nodes or one or more of plurality of actuator nodes (Fig. 2; Col. 5, lines 45 – Col. 7, lines 67). Referring to claims 15-17, Petite teaches a wireless gateway node including a wireless transceiver, the wireless gateway node monitoring data from the plurality of

sensor nodes and the plurality of actuator nodes and communicating the data to a network gateway; a wireless repeater node including a wireless transceiver, the wireless repeater node receiving a message from one of the plurality of sensor nodes and the plurality of actuator nodes and transmitting the message to a destination sensor or actuator node; wherein the first sensor node communicates the first message to the first actuator node through the wireless repeater node (Fig. 2; Col. 5, lines 45 – Col. 7, lines 67).

Hirsch and Petite are analogous art because they are from the same field of endeavor, irrigation systems.

At time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Petite with Hirsch.

One of ordinary skill in the art would have been motivated to combine these reference because Petite teaches a cost effective method of monitoring and controlling remote devices. More specifically, Petite is directed to a computerized system for monitoring, reporting, and controlling remote systems and system information transfer by transmitting information signals to a WAN gateway interface and using applications on a connected server to process the information. Because the applications server is integrated on a WAN, Web browsers can be used by anyone with Internet access (and the appropriate access permissions) to view and download the recorded data. Petite teaches a system is provided having one or more sensors to be read and/or actuators to be controlled remotely, ultimately through a computer on the Internet. The sensors and/or actuators are interfaced with wireless transceivers that transmit and/or receive

data to and from the Internet. In this regard, additional wireless transceivers may relay information between the transceivers disposed in connection with the sensors and actuators and a gateway to the Internet. It should be appreciated that, a portion of the information communicated includes data that uniquely identifies the sensors and/or actuators. Petite teaches a system is configured to monitor and report system parameters. The system is implemented by using a plurality of wireless transceivers. At least one wireless transceiver is interfaced with a sensor, transducer, actuator or some other device associated with the application parameter of interest. In this regard, the term "parameter" is broadly construed and may include, but is not limited to, a system alarm condition, a system process variable, an operational condition, etc. The system also includes a plurality of transceivers that act as signal repeaters that are dispersed throughout the nearby geographic region at defined locations. By defined locations, it is meant only that the location of each transceiver is known to a central computer. The central computer may be informed of transceiver physical locations after permanent installation, as the installation location of the transceivers is not limited. Each transceiver that serves to repeat a previously generated data signal may be further integrated with its own unique sensor or a sensor actuator combination as required. Additional transceivers may be configured as stand-alone devices that serve to simply receive, format, and further transmit system data signals. Further, the system includes a local data formatter that is configured to receive information communicated from the transceivers, format the data, and forward the data via the gateway to one or more servers interconnected with the WAN. The server further includes means for evaluating

the received information and identifying the system parameter and the originating location of the parameter. The server also includes means for updating a database or further processing the reported parameters. Petite teaches a system can be configured to collect, format, and control client application specific processes by replacing a local control computer with a WAN interfaced server and integrating system specific actuators with the aforementioned system transceivers. Petite teaches the information transmitted and received by the wireless transceivers may be further integrated with other data transmission protocols for transmission across telecommunications and computer networks other than the Internet. In addition, it should be further appreciated that telecommunications and computer networks other than the Internet can function as a transmission path between the networked wireless transceivers, the local gateways, and the central server. Petite teaches a system can be configured using the present invention to translate and transmit control signals from an existing local controller via the networked wireless transceivers. In this regard, the system of the present invention would require a data translator to tap into the data stream of an existing control system. Distinct control system signals may be mapped to function codes used by the present invention in order to provide customer access to control system data. In this way, the system of the present invention can be integrated with present data collection and system controllers inexpensively, as customers will only have to add a data translator and a wireless transmitter or transceiver as the application demands. By integrating the present invention with the data stream generated by present monitoring and control systems, potential customers enjoy the benefits of the present invention without the

difficulties associated with integrating sensors and actuators to monitor individual system parameters (Col. 2, lines 33 – Col. 4, lines 16).

11. Claims 2-4, 15-17, are rejected under 35 U.S.C. 103(a) as being unpatentable over Float as applied to the claims above, and further in view of U.S. Pat. No. 6,437,692 to Petite et al (hereinafter referred to as Petite).

Referring to claims 2-4, Float teaches wherein the plurality of sensor nodes and the plurality of actuator nodes are distributed to support a first irrigation zone and a second irrigation zone; wherein the first sensor node supports the first irrigation zone and at least one wireless node of the one or more wireless nodes supports the second irrigation zone (Fig. 1, Col. 1, lines 5-37; Col. 3, lines 5-47).

Referring to claims 2-4, Float teaches all of the limitations set forth above, however fails to teach wherein the first sensor node communicates the first message to the first actuator node through one or more wireless nodes in the system, the wireless nodes being one or more of the plurality of sensor nodes or one or more of the plurality of actuator nodes. Referring to claim 15-17, Float teaches all of the limitations set forth above, however fails to teach a wireless gateway node including a wireless transceiver, the wireless gateway node monitoring data from the plurality of sensor nodes and the plurality of actuator nodes and communicating the data to a network gateway; a wireless repeater node including a wireless transceiver, the wireless repeater node receiving a message from one of the plurality of sensor nodes and the plurality of actuator nodes and transmitting the message to a destination sensor or actuator node;

wherein the first sensor node communicates the first message to the first actuator node through the wireless repeater node.

However, referring to claims 2-4, Petite teaches wherein first sensor node communicates first message to first actuator node through one or more wireless nodes in an irrigation system, the wireless nodes being one or more of plurality of sensor nodes or one or more of plurality of actuator nodes (Fig. 2; Col. 5, lines 45 – Col. 7, lines 67). Referring to claims 15-17, Petite teaches a wireless gateway node including a wireless transceiver, the wireless gateway node monitoring data from the plurality of sensor nodes and the plurality of actuator nodes and communicating the data to a network gateway; a wireless repeater node including a wireless transceiver, the wireless repeater node receiving a message from one of the plurality of sensor nodes and the plurality of actuator nodes and transmitting the message to a destination sensor or actuator node; wherein the first sensor node communicates the first message to the first actuator node through the wireless repeater node (Fig. 2; Col. 5, lines 45 – Col. 7, lines 67).

Float and Petite are analogous art because they are from the same field of endeavor, irrigation systems.

At time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Petite with Float.

One of ordinary skill in the art would have been motivated to combine these reference because Petite teaches a cost effective method of monitoring and controlling remote devices. More specifically, Petite is directed to a computerized system for

monitoring, reporting, and controlling remote systems and system information transfer by transmitting information signals to a WAN gateway interface and using applications on a connected server to process the information. Because the applications server is integrated on a WAN, Web browsers can be used by anyone with Internet access (and the appropriate access permissions) to view and download the recorded data. Petite teaches a system is provided having one or more sensors to be read and/or actuators to be controlled remotely, ultimately through a computer on the Internet. The sensors and/or actuators are interfaced with wireless transceivers that transmit and/or receive data to and from the Internet. In this regard, additional wireless transceivers may relay information between the transceivers disposed in connection with the sensors and actuators and a gateway to the Internet. It should be appreciated that, a portion of the information communicated includes data that uniquely identifies the sensors and/or actuators. Petite teaches a system is configured to monitor and report system parameters. The system is implemented by using a plurality of wireless transceivers. At least one wireless transceiver is interfaced with a sensor, transducer, actuator or some other device associated with the application parameter of interest. In this regard, the term "parameter" is broadly construed and may include, but is not limited to, a system alarm condition, a system process variable, an operational condition, etc. The system also includes a plurality of transceivers that act as signal repeaters that are dispersed throughout the nearby geographic region at defined locations. By defined locations, it is meant only that the location of each transceiver is known to a central computer. The central computer may be informed of transceiver physical locations after permanent

installation, as the installation location of the transceivers is not limited. Each transceiver that serves to repeat a previously generated data signal may be further integrated with its own unique sensor or a sensor actuator combination as required. Additional transceivers may be configured as stand-alone devices that serve to simply receive, format, and further transmit system data signals. Further, the system includes a local data formatter that is configured to receive information communicated from the transceivers, format the data, and forward the data via the gateway to one or more servers interconnected with the WAN. The server further includes means for evaluating the received information and identifying the system parameter and the originating location of the parameter. The server also includes means for updating a database or further processing the reported parameters. Petite teaches a system can be configured to collect, format, and control client application specific processes by replacing a local control computer with a WAN interfaced server and integrating system specific actuators with the aforementioned system transceivers. Petite teaches the information transmitted and received by the wireless transceivers may be further integrated with other data transmission protocols for transmission across telecommunications and computer networks other than the Internet. In addition, it should be further appreciated that telecommunications and computer networks other than the Internet can function as a transmission path between the networked wireless transceivers, the local gateways, and the central server. Petite teaches a system can be configured using the present invention to translate and transmit control signals from an existing local controller via the networked wireless transceivers. In this regard, the system of the present invention

would require a data translator to tap into the data stream of an existing control system. Distinct control system signals may be mapped to function codes used by the present invention in order to provide customer access to control system data. In this way, the system of the present invention can be integrated with present data collection and system controllers inexpensively, as customers will only have to add a data translator and a wireless transmitter or transceiver as the application demands. By integrating the present invention with the data stream generated by present monitoring and control systems, potential customers enjoy the benefits of the present invention without the difficulties associated with integrating sensors and actuators to monitor individual system parameters (Col. 2, lines 33 – Col. 4, lines 16).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Float as applied to claims 1, 5-7, 9-12, 14, 19-23 above, and further in view of U.S. Pat. No. 6,337,635 to Ericksen et al (hereinafter referred to as Ericksen).

Referring to claim 8, Float teaches all of the limitations set forth above, however fails to teach wherein the first actuator node controls the on-duration of the irrigation valve based on the sensor data.

However, referring to claim 8, Ericksen teaches a first actuator node controls the on-duration of an irrigation valve based on sensor data (Col. 1, lines 7-14; Col. 2, lines 43-67; Col. 3, lines 51 – Col. 4, lines 13; Col. 5, lines 4-13; Col. 9, lines 37-63).

Float and Ericksen are analogous art because they are from the same field of endeavor, irrigation systems.

At time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Ericksen with Float.

One of ordinary skill in the art would have been motivated to combine these reference because Ericksen teaches a remotely controllable programmable hose faucet valve system includes a valve unit for attachment to a standard type outdoor hose faucet, or bib and to which can be attached a garden hose to control the flow of water such as to a sprinkler attached to the hose. A remote programmable controller unit communicates preprogrammed commands to the valve unit by means of radio frequency (RF) signals, thereby eliminating the need for cable attachment therebetween. The RF signals are sent by a transmitter unit, which also acts as a base for the controller unit and which broadcasts RF signals in response to commands from the controller unit. An RF signal receiver unit connected to the valve unit receives the RF signals and instructs the valve unit when to start and stop water flow. This allows a user to turn the water on, off, and change the timing of the waterings remotely without cables using the controller unit from inside the house rather than requiring the user to travel outside to the hose faucet. Each different transmitter unit sends an individual code in the RF signal and the receiver unit will not respond thereto unless programmed to recognize the code of that particular transmitter unit. This feature helps avoid inadvertent cross-signaling by adjacent users with the same systems. The controller unit can also be directly attached to the valve unit so that it is not necessary to use the transmitter and receiver units. Ericksen teaches the receiver unit electrical circuitry may be augmented by using a microprocessor and/or one or more memory chips therein so

as to act as a controller unit itself which times the duration of watering and shuts off the water flow from the valve unit at the proper time has elapsed. In such a situation a hand held transmitter unit having a plurality of switches thereon and which transmits a code in the RF signal which the receiver unit must recognize to respond to may be used in place of the controller unit and transmitter unit. Upon depressing a particular switch the hand held transmitter unit transmits an RF signal, including a code which the augmented receiver must recognize to respond to the signal, to turn on for a period of time or to turn off the water flow from the valve unit depending on the switch depressed. If the code is recognized, the augmented receiver unit starts the water flow for the period of time signaled or stops the water flow, the receiver unit times the watering and shuts off the water flow at the proper time. Alternatively, the hand held transmitter unit can be augmented with a microprocessor and/or one or more memory chips for use with the standard, non-augmented receiver unit. In this case, the hand held transmitter unit times the watering duration and sends both the RF signal to start watering and an RF signal when it is time to cease watering (Col. 2, lines 43 – Col. 4, lines 13).

13. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Float or Hirsch as applied to the claims above, and further in view of U.S. Pat. No. 4,646,224 to Ransburg et al (hereinafter referred to as Ransburg).

Referring to claim 13, Float and Hirsch teaches all of the limitations set forth above, however fails to teach wherein the power level of the solar or battery power device is measured to determine if a power failure condition has occurred.

However, referring to claim 13, Ransburg teaches wherein the power level of the solar or battery power device is measured to determine if a power failure condition has occurred (Col. 10, lines 4-19).

Float or Hirsch and Ransburg are analogous art because they are from the same field of endeavor, irrigation systems.

At time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Ransburg with Float or Hirsch.

One of ordinary skill in the art would have been motivated to combine Ransburg with Float or Hirsch because Ransburg teaches utilizing an application period within each zone which may include one or more application cycles in order to prevent the operation of the sprinklers at a time when the soil is temporarily saturated with water so as to prevent the possibility of run off. Ransburg teaches the controller preferably automatically calculates the number of cycles needed for each zone and the time for each cycle. Then, during automatic operation, the controller will turn on zones at appropriate times so as to prevent the amount of water applied during each cycle from exceeding the amount of water the soil can absorb during that cycle. The controller is preferably programmed in a programming mode during which time all water is shut off. However, a special mode is provided in the preferred embodiment in which programming can occur while the controller remains in an automatic mode of operation (Col. 2, line 45 – Col. 3, line 54).

14. Claims 18, 24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Float or Hirsch as applied to the claims above, and further in view of U.S. Pub. No. 2004/0131125 to Sanderford, Jr. et al (hereinafter referred to as Sanderford).

Referring to claims 18, 24, Float teaches the wireless transceivers of the sensor nodes and the actuator nodes communicate using radio frequency (Col. 4, lines 38-53).

Referring to claims 18, 24, Hirsch teaches the wireless transceivers of the sensor nodes and the actuator nodes communicate using radio frequency (Col. 3, lines 12-23).

Referring to claims 18, 24, Float and Hirsch teaches all of the limitations set forth above, however fails to teach the relative position of the plurality of sensor nodes and the plurality of actuator nodes is determined by measuring the RF power of a received signal and triangulating the measured RF power from two or more sensor or actuator nodes.

However, referring to claims 18, 24, Sanderford teaches the relative position of the plurality of nodes is determined by measuring the RF power of a received signal and triangulating the measured RF power from two or more nodes (par. 125).

Float or Hirsch and Sanderford are analogous art because they are from the same field of endeavor, irrigation systems.

At time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Sanderford with Float or Hirsch.

One of ordinary skill in the art would have been motivated to combine Sanderford with Float or Hirsch because Sanderford teaches a system for remote monitoring that

has advantageous performance characteristics, is reliable, and is cost effective making it an option for a vast range of potential applications for remote monitoring (par. 20-50).

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Shechtman whose telephone number is (571) 272-3754. The examiner can normally be reached on 9:30am-6:00pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SPS

Sean P. Shechtman

April 23, 2008

/Sean P. Shechtman/
Primary Examiner, Art Unit 2121